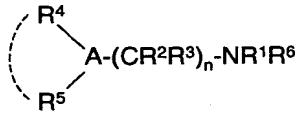
CLAIMS

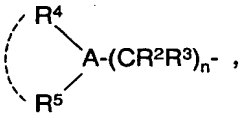
1. A catalyst composition comprising:

1) a gelling catalyst represented by the general formula:



in which:

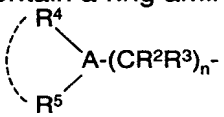
A represents CH or N,

R^1 represents hydrogen or the group  ,

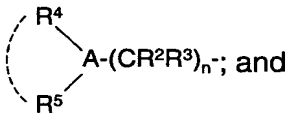
n represents an integer between 1 and 3, inclusive,

R^2 and R^3 each represent hydrogen or a C1-C6 alkyl group, and

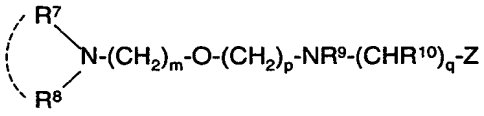
R^6 represents H or 3-aminopropyl, provided that:

when A is N, R^4 and R^5 each represents a C1-C6 alkyl group or together represent a C2-C5 alkylene group which may contain a ring amine moiety -NR-, where R is hydrogen, a C1-C4 alkyl group, or the group  ; and

when A is CH, R^4 and R^5 together represent a C2-C5 alkylene group containing a ring amine moiety -NR-, where R is a C1-C4 alkyl group or the group

 ; and

2) a blowing catalyst according to the general formula:

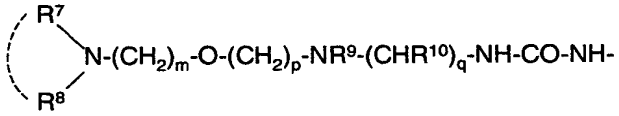


wherein:

R^7, R^8, and R^9 each independently represents a C1-C4 alkyl group;

R^{10} represents H, a C1-C4 alkyl group, a C6-C20 aryl group, or a C6-C20 aralkyl group;

m, p, and q each independently represents an integer between 1 and 4, inclusive; and Z represents -OH, $-NH_2$, $-NH-CO-NH_2$, or



2. The catalyst composition of claim 1, wherein R^4 and R^5 are each a methyl group, A is nitrogen, and R^2 and R^3 are each hydrogen.

3. The catalyst composition of claim 1, wherein R^7, R^8, and R^9 are each a methyl group, m and p are each equal to 2, and q is either 2 or 3.

4. The catalyst composition of claim 1, wherein A is CH, n is an integer between 1 and 3, inclusive, and R^4 and R^5 together constitute $-CH_2CH_2N(CH_3)CH_2-$.

5. The catalyst composition of claim 1, wherein the gelling catalyst comprises N,N,N",N"-tetramethyldipropylenetriamine.

6. The catalyst composition of claim 1, wherein the gelling catalyst comprises 3-dimethylaminopropylamine.

7. The catalyst composition of claim 1, wherein the gelling catalyst comprises N,N-bis(3-dimethylaminopropyl)-1,3-propanediamine.

8. The catalyst composition of claim 1, wherein the blowing catalyst comprises N,N,N'-trimethyl-N'-2-hydroxyethylbis(aminoethyl) ether.

9. The catalyst composition of claim 8, wherein the gelling catalyst comprises N,N,N",N"-tetramethyldipropylenetriamine.

10. The catalyst composition of claim 8, wherein the gelling catalyst comprises 3-dimethylaminopropylamine.

11. The catalyst composition of claim 8, wherein the gelling catalyst comprises N,N-bis(3-dimethylaminopropyl)-1,3-propanediamine.

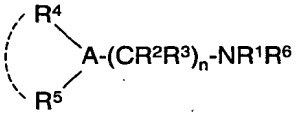
12. The catalyst composition of claim 1, wherein the blowing catalyst comprises N,N,N'-trimethyl-N'-3-aminopropylbis(aminoethyl) ether.

13. The catalyst composition of claim 1, wherein the blowing catalyst comprises N,N,N'-trimethyl-N'-3-ureidopropylbis(aminoethyl) ether.

14. The catalyst composition of claim 1, further comprising a carboxylic acid that forms a salt with one or both of the gelling catalyst and the blowing catalyst.

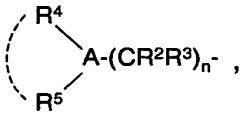
15. A formulation for producing a polyurethane foam, the formulation comprising a polyol, a polyisocyanate, water, and a catalyst composition comprising:

1) a gelling catalyst represented by the general formula:



in which:

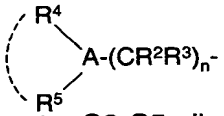
A represents CH or N,

R^1 represents hydrogen or the group  ,

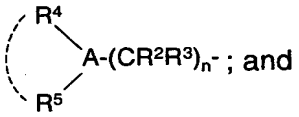
n represents an integer between 1 and 3, inclusive,

R^2 and R^3 each represent hydrogen or a C1-C6 alkyl group, and

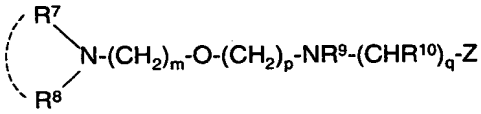
R^6 represents H or 3-aminopropyl, provided that:

when A is N, R^4 and R^5 each represents a C1-C6 alkyl group or together represent a C2-C5 alkylene group which may contain a ring amine moiety -NR-, where R is hydrogen, a C1-C4 alkyl group, or the group  ; and

when A is CH, R^4 and R^5 together represent a C2-C5 alkylene group containing a ring amine moiety -NR-, where R is a C1-C4 alkyl group or the group

 ; and

2) a blowing catalyst according to the general formula:

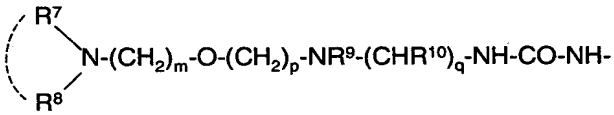


wherein:

R^7, R^8, and R^9 each independently represents a C1-C4 alkyl group;

R^{10} represents H, a C1-C4 alkyl group, a C6-C20 aryl group, or a C6-C20 aralkyl group;

m, p, and q each independently represents an integer between 1 and 4, inclusive; and Z represents -OH, $-NH_2$, $-NH-CO-NH_2$, or



16. The formulation of claim 15, wherein R^4 and R^5 are each a methyl group, A is nitrogen, and R^2 and R^3 are each hydrogen.

17. The formulation of claim 15, wherein R^7, R^8, and R^9 are each a methyl group, m and p are each equal to 2, and q is either 2 or 3.

18. The formulation of claim 15, wherein A is CH, n is an integer between 1 and 3, inclusive, and R^4 and R^5 together constitute $-CH_2CH_2N(CH_3)CH_2-$.

19. The formulation of claim 15, wherein the gelling catalyst comprises N,N,N",N"-tetramethyldipropylenetriamine.

20. The formulation of claim 15, wherein the gelling catalyst comprises 3-dimethylaminopropylamine.

21. The formulation of claim 15, wherein the gelling catalyst comprises N,N-bis(3-dimethylaminopropyl)-1,3-propanediamine.

22. The formulation of claim 15, wherein the blowing catalyst comprises N,N,N'-trimethyl-N'-2-hydroxyethylbis(aminoethyl) ether.

23. The formulation of claim 22, wherein the gelling catalyst comprises N,N,N",N"-tetramethyldipropylenetriamine.

24. The formulation of claim 22, wherein the gelling catalyst comprises 3-dimethylaminopropylamine.

25. The formulation of claim 22, wherein the gelling catalyst comprises N,N-bis(3-dimethylaminopropyl)-1,3-propanediamine.

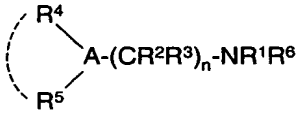
26. The formulation of claim 15, wherein the blowing catalyst comprises N,N,N'-trimethyl-N'-3-aminopropylbis(aminoethyl) ether.

27. The formulation of claim 15, wherein the blowing catalyst comprises N,N,N'-trimethyl-N'-3-ureidopropylbis(aminoethyl) ether.

28. The formulation of claim 15, further comprising a carboxylic acid that forms a salt with one or both of the gelling catalyst and the blowing catalyst.

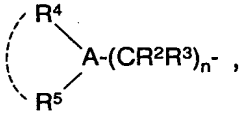
29. A polyurethane foam comprising a product of a reaction between a polyol and a polyisocyanate, the reaction taking place in the presence of water and a catalyst composition comprising:

1) a gelling catalyst represented by the general formula:



in which:

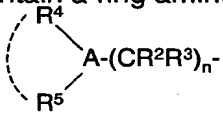
A represents CH or N,

R^1 represents hydrogen or the group  ,

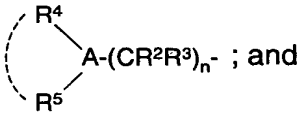
n represents an integer between 1 and 3, inclusive,

R^2 and R^3 each represent hydrogen or a C1-C6 alkyl group, and

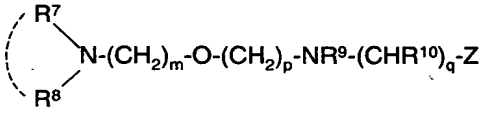
R^6 represents H or 3-aminopropyl, provided that:

when A is N, R^4 and R^5 each represents a C1-C6 alkyl group or together represent a C2-C5 alkylene group which may contain a ring amine moiety -NR-, where R is hydrogen, a C1-C4 alkyl group, or the group  ; and

when A is CH, R^4 and R^5 together represent a C2-C5 alkylene group containing a ring amine moiety -NR-, where R is a C1-C4 alkyl group or the group

 ; and

2) a blowing catalyst according to the general formula:

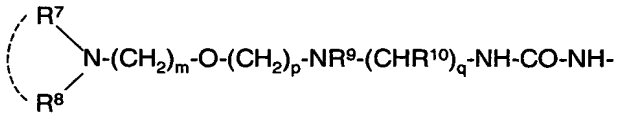


wherein:

R^7, R^8, and R^9 each independently represents a C1-C4 alkyl group;

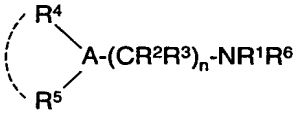
R^{10} represents H, a C1-C4 alkyl group, a C6-C20 aryl group, or a C6-C20 aralkyl group;

m, p, and q each independently represents an integer between 1 and 4, inclusive; and Z represents -OH, $-NH_2$, $-NH-CO-NH_2$, or



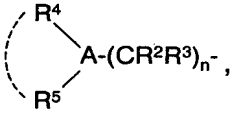
30. A method of making a polyurethane foam, the method comprising mixing together a polyol, a polyisocyanate, water, and a catalyst composition comprising:

1) a gelling catalyst represented by the general formula:



in which:

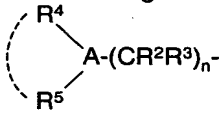
A represents CH or N,

R^1 represents hydrogen or the group  ,

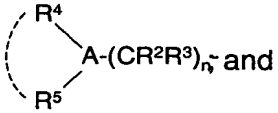
n represents an integer between 1 and 3, inclusive,

R^2 and R^3 each represent hydrogen or a C1-C6 alkyl group, and

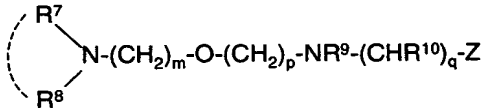
R^6 represents H or 3-aminopropyl, provided that:

when A is N, R^4 and R^5 each represents a C1-C6 alkyl group or together represent a C2-C5 alkylene group which may contain a ring amine moiety -NR-, where R is hydrogen, a C1-C4 alkyl group, or the group  ; and

when A is CH, R^4 and R^5 together represent a C2-C5 alkylene group containing a ring amine moiety -NR-, where R is a C1-C4 alkyl group or the group

 and

2) a blowing catalyst according to the general formula:

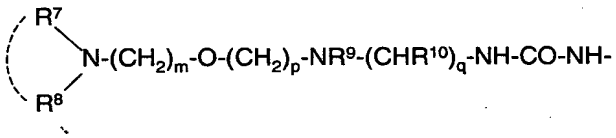


wherein:

R^7, R^8, and R^9 each independently represents a C1-C4 alkyl group;

R^{10} represents H, a C1-C4 alkyl group, a C6-C20 aryl group, or a C6-C20 aralkyl group;

m, p, and q each independently represents an integer between 1 and 4, inclusive; and Z represents -OH, $-NH_2$, $-NH-CO-NH_2$, or



31. The method of claim 30, wherein the blowing catalyst comprises N,N,N'-trimethyl-N'-2-hydroxyethylbis(aminoethyl) ether.

32. The method of claim 30, wherein the blowing catalyst comprises N,N,N'-trimethyl-N'-3-aminopropylbis(aminoethyl) ether.

33. The method of claim 30, wherein the blowing catalyst comprises N,N,N'-trimethyl-N'-3-ureidopropylbis(aminoethyl) ether.

34. The method of claim 30, wherein the catalyst composition further comprises a carboxylic acid that forms a salt with one or both of the gelling catalyst and the blowing catalyst.